

STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 Lab ID: N00005292 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00005292001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

11/02/2009

Sampler's Name:

GEOFF KLEIN

08:50

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: Agency Invoiced:

Date/Time Received:

327.39-12 TDEC-DWS TDEC-DWS

Priority Date:

11/02/2009 11:30

Received By:

L Barrociere

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	RESULT UNITS MDL MQL				DATE	
Digestion Metals	11/03/2009				A Wilson	11/3/2009	

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

pH:

Other: Flow:

TEST: ICP-MS	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	11/3/2009
Barium	25	μg/L	2.5	5	M Pattanayek	11/3/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	11/3/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	11/3/2009
Chromium	U ,	μg/L	2.0	5	M Pattanayek	11/3/2009
Cobalt	0.14J	μg/L	0.04	1	M Pattanayek	11/3/2009
Lead	0.26J	μg/L	0.10	1	M Pattanayek	11/3/2009
Manganese	42	μg/L	0.42	1	M Pattanayek	11/3/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	11/3/2009
Thallium	0.04J	μg/L	0.03	1	M Pattanayek	11/3/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	11/3/2009

TEST: Mercury	ME					
ANALYTE	RESULT UNITS MI		MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	11/3/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005292002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

11/02/2009 08:55 **GEOFF KLEIN**

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency Invoiced: **Priority Date:**

TDEC-DWS

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

pH: Chlorine, residual:

Field Determinations

Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	11/03/2009				A Wilson	11/3/2009	

TEST: ICP-MS	METHOD: EPA 200.8					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	11/3/2009
Barium	25	μg/L	2.5	5	M Pattanayek	11/3/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	11/3/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	11/3/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	11/3/2009
Cobalt	0.04J	μg/L	0.04	1	M Pattanayek	11/3/2009
Lead	U	μg/L	0.10	1	M Pattanayek	11/3/2009
Manganese	, U	μg/L	0.42	1	M Pattanayek	11/3/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	11/3/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	11/3/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	11/3/2009

TEST: Mercury	MET					
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	11/3/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005292003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No :

Date/Time Collected:

11/02/2009 09:45 **GEOFF KLEIN**

Sampler's Name: County:

ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	11/03/2009				A Wilson	11/3/2009

TEST: ICP-MS	ME	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	11/3/2009
Barium	24	μg/L	2.5	5	M Pattanayek	11/3/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	11/3/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	11/3/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	11/3/2009
Cobalt	0.04J	μg/L	0.04	1	M Pattanayek	11/3/2009
Lead	U	μg/L	0.10	1	M Pattanayek	11/3/2009
Manganese	6.8	μg/L	0.42	1	M Pattanayek	11/3/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	11/3/2009
Thallium	Ū	μg/L	0.03	1	M Pattanayek	11/3/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	11/3/2009

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	11/3/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005292004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

11/02/2009 09:50 **GEOFF KLEIN**

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville **TDEC-DWS**

Billing Code: Send Report To: 327.39-12 **TDEC-DWS**

Agency Invoiced: **Priority Date:**

TDEC-DWS

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

Field Determinations

:Hq

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	11/03/2009				A Wilson	11/3/2009

TEST: ICP-MS	ME:					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	11/3/2009
Barium	26	μg/L	2.5	5	M Pattanayek	11/3/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	11/3/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	11/3/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	11/3/2009
Cobalt	0.05J	μg/L	0.04	1	M Pattanayek	11/3/2009
Lead	U	μg/L	0.10	1	M Pattanayek	11/3/2009
Manganese	0.81J	μg/L	0.42	1	M Pattanayek	11/3/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	11/3/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	11/3/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	11/3/2009

TEST: Mercury	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	11/3/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

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Geoff Klein

TDEC-DWS

200 East Race St Knoxville, TN 37763

N00005292 Lab ID:

Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00005292001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

11/02/2009 08:50

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

•

CFS

TEST: Alkalinity, Total	ME ⁻	METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	69	mg/L	3.8	10	M Chen	11/3/2009

TEST: Hardness, Calcium	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	49	mg/L	0.7	1	M Chen	11/2/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005292002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

11/02/2009 08:55

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Sampling Agency:

Knoxville **TDEC-DWS**

Billing Code: Send Report To:

327.39-12 **TDEC-DWS TDEC-DWS**

Agency Invoiced: **Priority Date:**

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	70	mg/L	3.8	10	M Chen	11/3/2009	

TEST: Hardness, Calcium	ME.	THOD: SM 350					
ANALYTE	RESULT	UNITS	MDL	MQL ANALYZED B		: DATE	
Calcium hardness	50	mg/L	0.7	1	M Chen	11/2/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005292003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

11/02/2009 09:45

Sampler's Name:

GEOFF KLEIN

County: **Sample Matrix:** **ROANE - 73** Water

EFO:

Knoxville

Sampling Agency:

TDEC-DWS 327.39-12

Billing Code: Send Report To:

TDEC-DWS TDEC-DWS

Agency Invoiced: **Priority Date:**

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	73	mg/L	3.8	10	M Chen	11/3/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	49	mg/L	0.7	1	M Chen	11/2/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005292004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

11/02/2009 09:50

Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: Billing Code:

TDEC-DWS

Send Report To:

327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

11/02/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL ANALYZED BY:		DATE	
Total Alkalinity	65	mg/L	3.8	10	M Chen	11/3/2009	

TEST: Hardness, Calcium	ME.	THOD: SM 350	0-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL ANALYZED BY		: DATE	
Calcium hardness	51	mg/L	0.7	1	M Chen	11/2/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit